

Validating Delivery Performance: Benchmarking Experiences at IBM

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Corporate Lingo Explained

What is Delivery Performance?



I think it means how fast UPS delivers your eBay packages.



By Wai F. Hom

Nice one, son!

HA
HA



Agenda

The Problem

Getting Organized

- Industry Data

- Personnel

- Process and Methods

- Tools

Going Operational

Adapting to Market Conditions

Business Impact and Results

Lessons Learned Summary

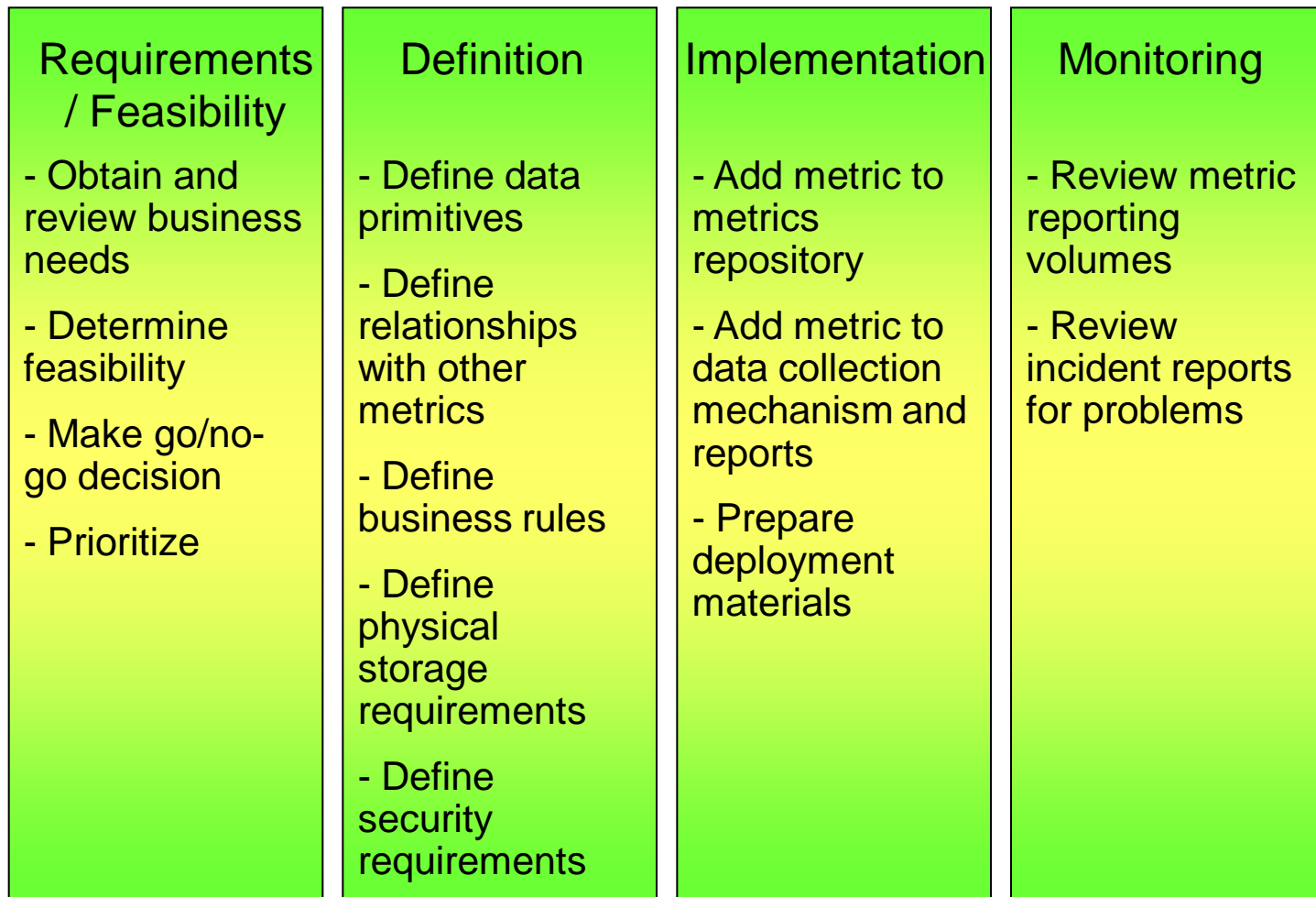
The complexity of your organization's metrics depends on factors such as management commitment, process maturity, and market competitiveness.



Support of complex organizational metrics requires a team to follow a documented metrics lifecycle.



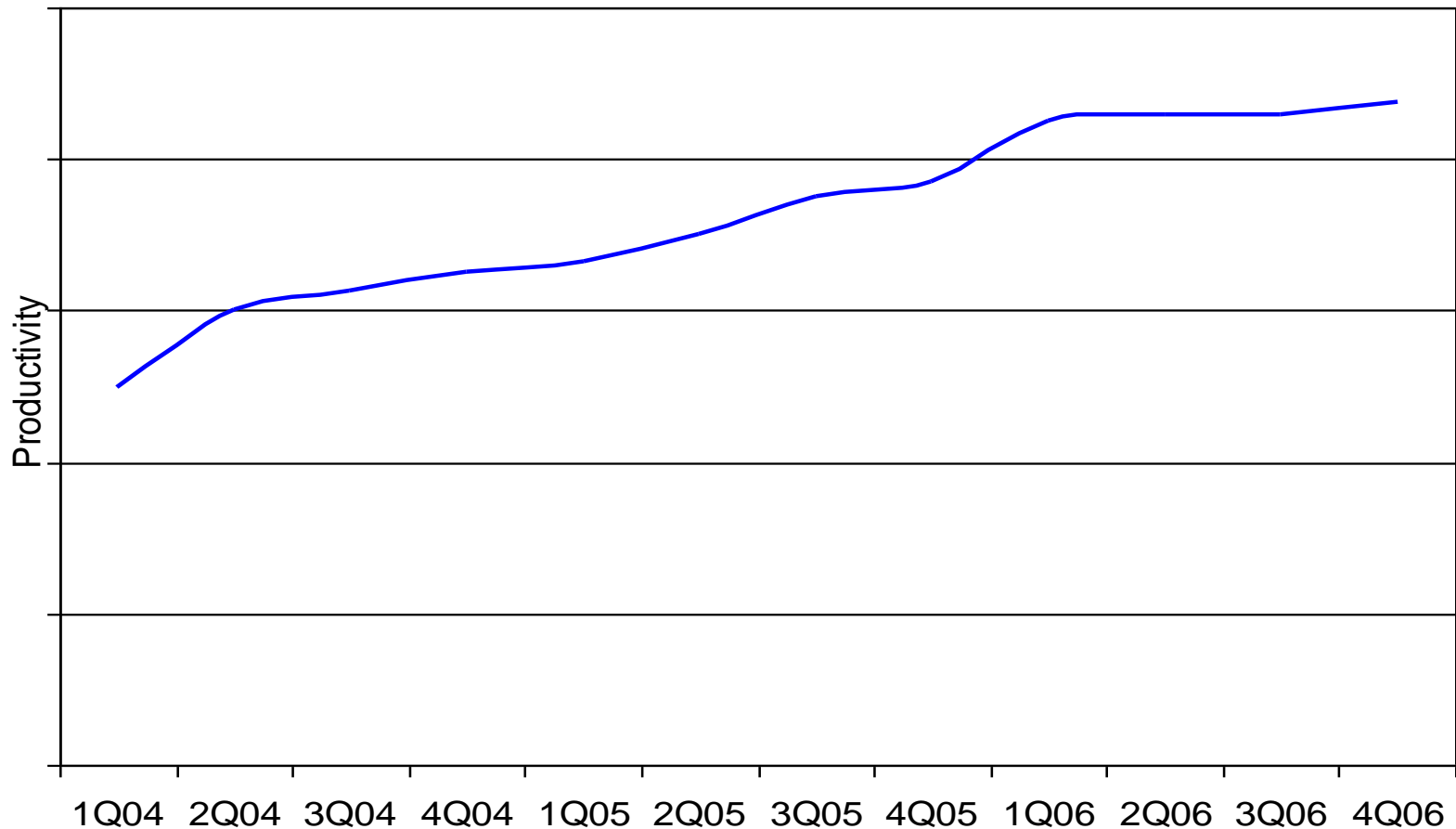
Here's an example of a common metrics lifecycle that many organizations follow. Having a metrics lifecycle does not guarantee success. What is missing, which is a major reason why metrics programs fail to grow?



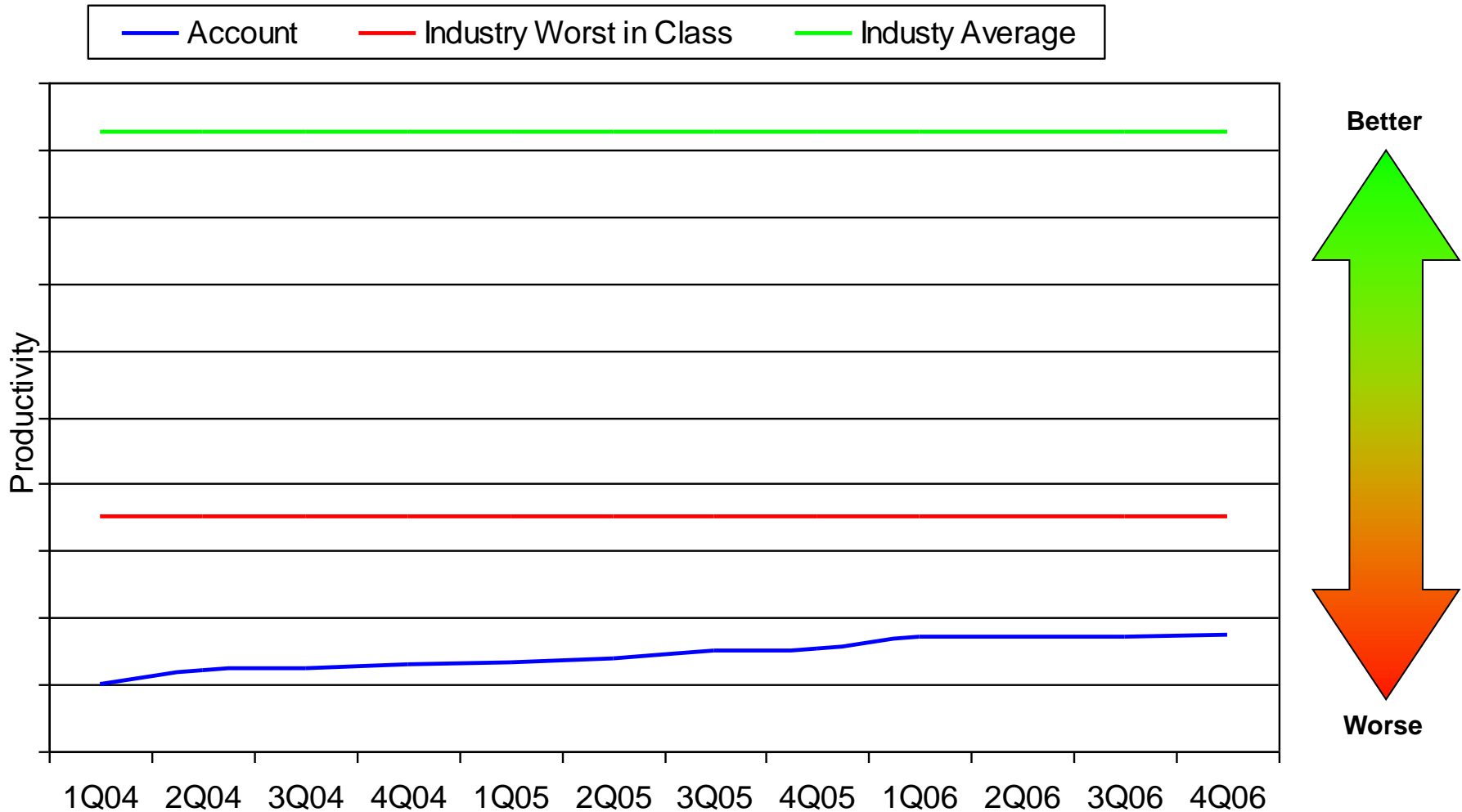
When Finance asks organizations how costs can be reduced, the Metrics program is often suggested, since many people do not see any value.



While organizational productivity may show an increasing trend over time, how do you know how good you **really** are?



Reviewing your organizational metrics after application baselines are created, will determine if there are performance issues.



Benchmarking must be added to the Metrics lifecycle in order to drive fact-based decision making within a company and eliminate emotion-based decisions and actions.

Requirements / Feasibility	Definition	Implementation	Monitoring	Benchmarking
<ul style="list-style-type: none"> - Obtain and review business needs - Determine feasibility - Make go/no-go decision - Prioritize 	<ul style="list-style-type: none"> - Define data primitives - Define relationships with other metrics - Define business rules - Define physical storage requirements - Define security requirements 	<ul style="list-style-type: none"> - Add metric to metrics repository - Add metric to data collection mechanism and reports - Prepare deployment materials 	<ul style="list-style-type: none"> - Review metric reporting volumes - Review incident reports for problems 	<ul style="list-style-type: none"> - Compare metric against industry benchmark - Conduct deep dive analysis

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Getting Organized

- 9 years ago, a proposal was sent to IBM management to fund an internal application development benchmarking program to look at the delivery performance (Productivity, Quality, Cost Estimating Ratio and Schedule Estimating Ratio) of IBM programmers who support operational systems (for example, Order Entry, Billing, and Financial Systems).
- Funding was used for
 - Staffing
 - Acquisition of industry data
 - Acquisition of a statistical package/tool
 - Tool training
 - Benchmarking Process development and documentation
 - Benchmarking Process and Tool integration

Data Requirements for Benchmarking

- ✓ Multi-dimensional view
- ✓ Worldwide
- ✓ Cross industry
- ✓ IFPUG Counting rules used
- ✓ Large dataset of at least 1000 projects
- ✓ Ability to aggregate and subset (slice and dice) the data

Lessons Learned: Data

-  Build relationships with your Benchmarking vendors to foster trust and promote mutual understanding of organizational objectives
-  Acquire data from reputable companies who analyze, normalize, and filter the data that they collect
-  Avoid vendors who promise they can benchmark ANY metric
-  Ensure that the benchmarking data is consistent with your data standards (For example, IFPUG Counting Rules, Defect Severity Classification, Warranty Period, etc)
-  Understand normalization rules used by the benchmarking data source
-  Use integrated benchmarking data for multi-dimensional analysis to speed up the adoption of the Benchmarking program

Lessons Learned: Resources



Establish and maintain a stable team








Staff your team with the correct resources to build your “dream team” in order to establish credibility



Ideal characteristics of a team member:

- Application Development/Maintenance background
- Metrics background
- Basic theoretical statistics background
- Ability to separate theory/text book definitions from real life
- Good written/verbal communication skills
- Ability to think logically
- Ability to work independently with minimal directions
- Attention to deal / fit and finish

Lessons Learned: Process

-  Processes and automation can only get you so far. Team member skills and aptitude will carry you forward
-  Don't be afraid to revisit, revise, and revamp processes
-  Embrace change!
-  Demonstrate/communicate program value/return on investment
-  Focus on creating new Program services/offerings (GROWTH) while implementing continuous improvement to existing services/offerings (INNOVATE and IMPROVE)

Sample Tool Requirements

- ✓ Basic statistical calculations
 - ✓ Mean
 - ✓ Median
 - ✓ Standard Deviation
 - ✓ Minimum/Maximum
 - ✓ Quantiles
- ✓ Data Analysis
 - ✓ Correlation Analysis
 - ✓ Regression Analysis
 - ✓ Non-parametric tests
- ✓ Data File Manipulation
 - ✓ Concatenate
 - ✓ Subset
 - ✓ Join / Update
- ✓ Scripting Language

Lessons Learned: Tools



Review/evaluate/select tools against your functional requirements



Invest in adequate tools training



Remote, web-based training, while the most cost-effective, may not be appropriate for everyone. Everyone learns differently.



Invest in advanced tool training to take advantage of automation that might be supported in the tools

```
/* Validate Count Approach field. Keep only IFPUG records. */
For (i = NRow(dt), i > 0, i--,
    If (:Count Approach[i] != "IFPUG", dt << Delete Rows (i));
); /* END OF FOR */

/* Validate Data Quality Rating field. Keep A and B Quality Records only */
For (i = NRow(dt), i > 0, i--,
    If ((:Data Quality Rating[i] == "C" |
        :Data Quality Rating[i] == "D"), dt << Delete Rows (i));
); /* END OF FOR */
```

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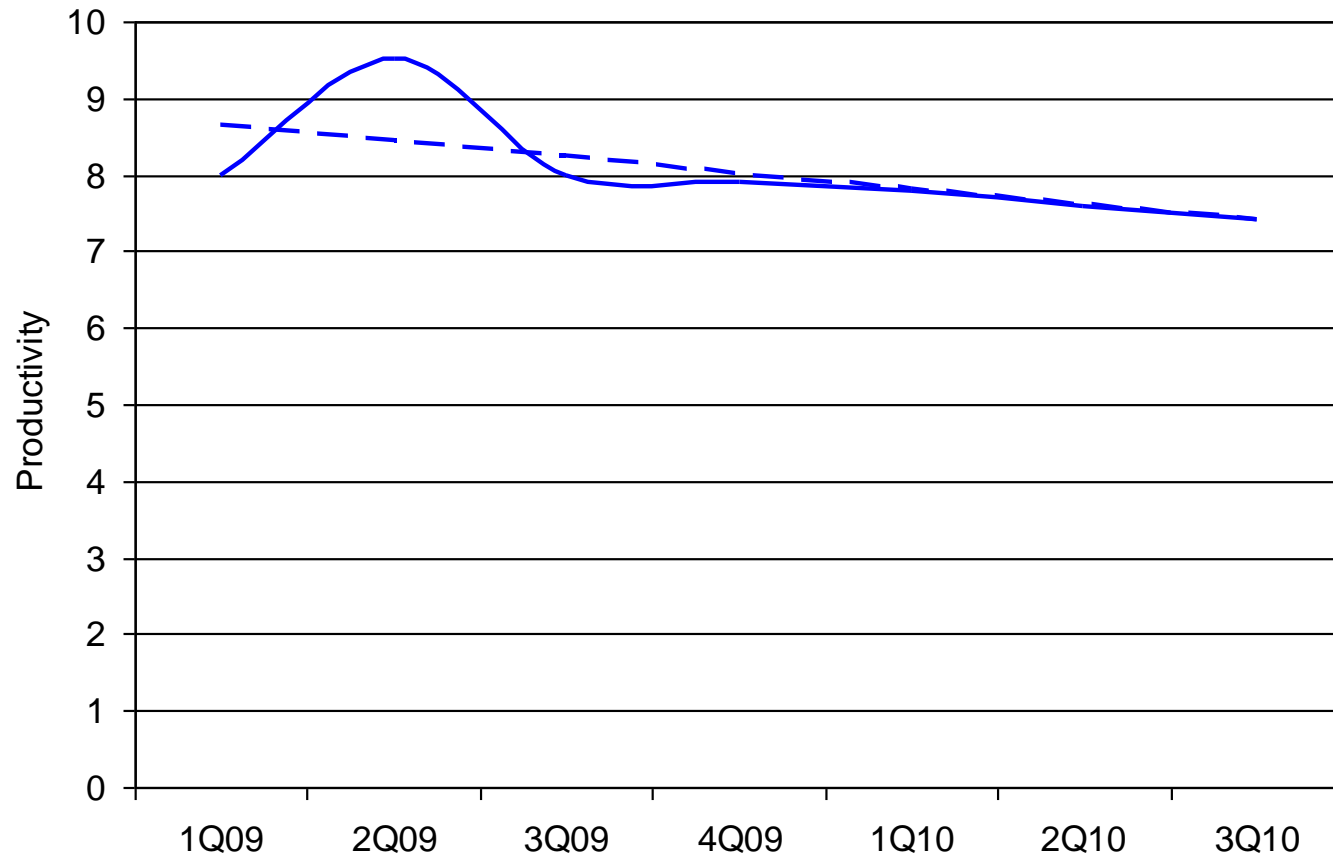
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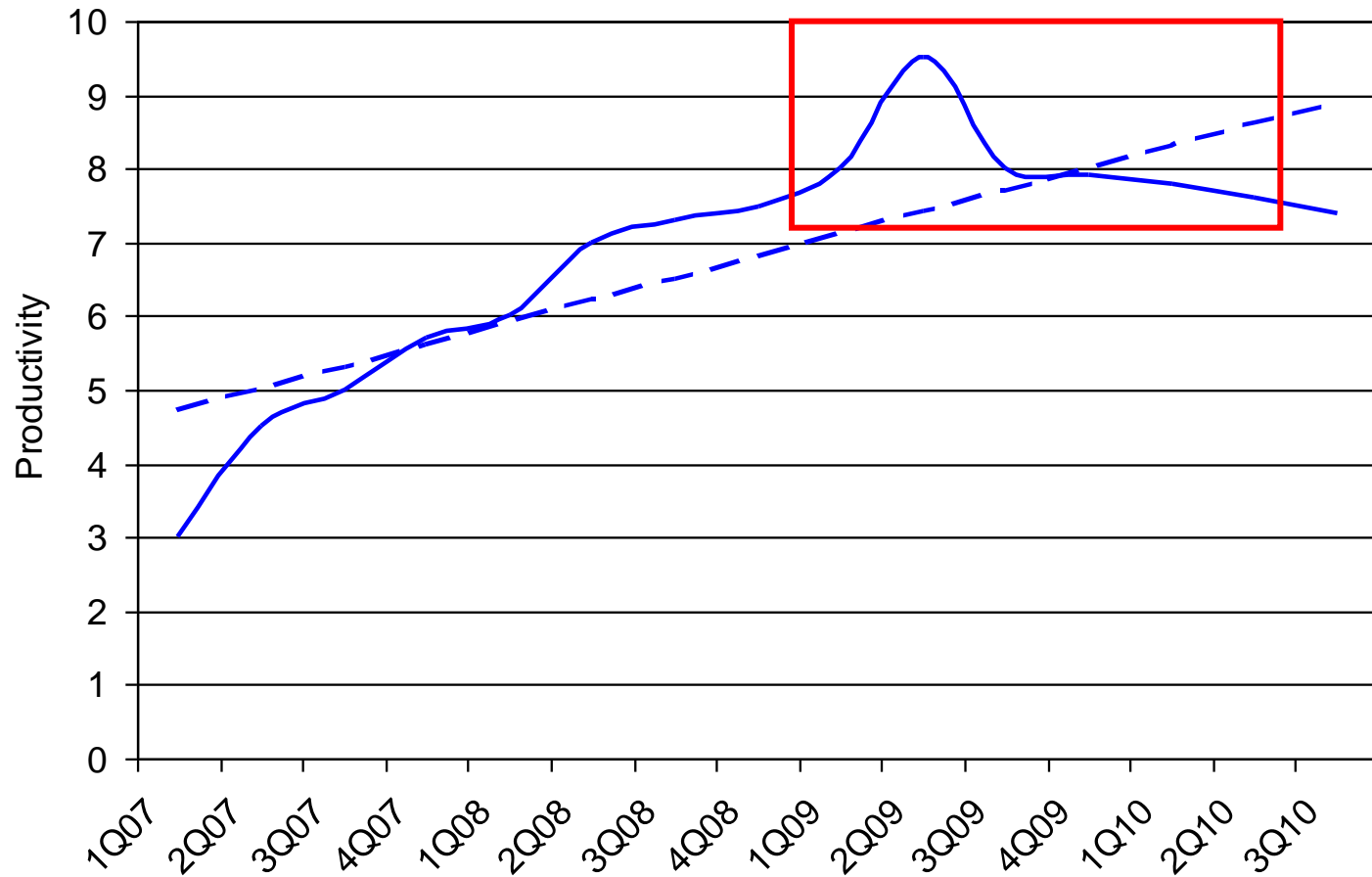
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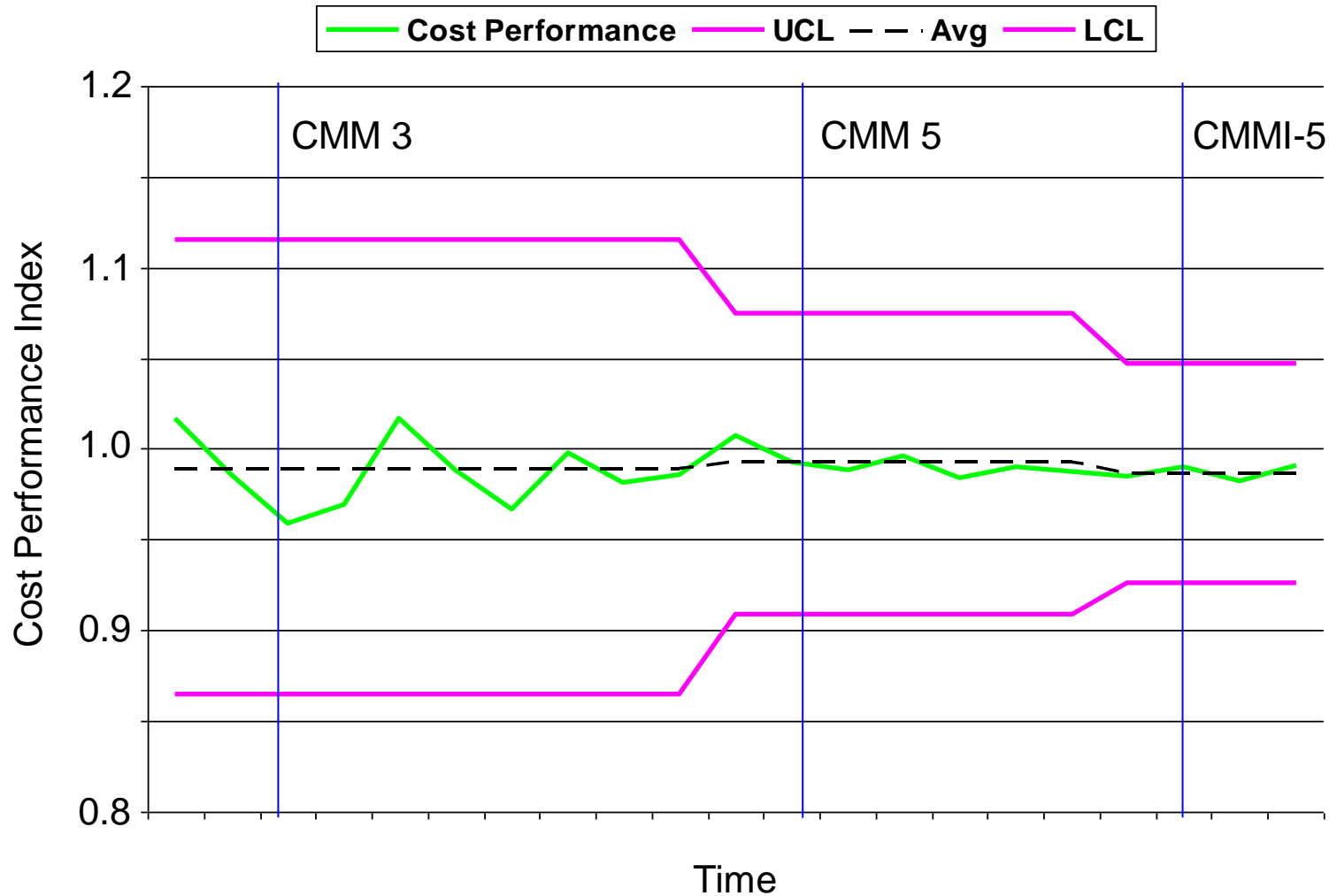
Although we received approval of our benchmarking deliverables fairly quickly, we spent a lot of time investigating data anomalies. Often, short term trending gave a distorted picture of actual performance.



Longer term trending data will give you a better view of actual delivery performance



Business Analytics: Mining **data** to formulate **information** and **knowledge** about your organization, and using that knowledge to your **competitive advantage**



Lessons Learned: Going Operational



Identify a management advocate/champion



Validate that data elements and normalization are consistent across data sources



Reconcile all metrics calculations performed by the statistical tools package
Statistical Package (Average of Averages)

$$\frac{\sum_{i=1}^{\text{Projects}} \frac{\text{Function Points}_i}{\text{Development Hours}_i}}{\text{\# of Projects}}$$

Average (Organization Standard)

$$\frac{\sum_{i=1}^{\text{Projects}} \text{Function Points}_i}{\sum_{i=1}^{\text{Projects}} \text{Development Hours}_i}$$

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Lessons Learned: Adapting to Market Conditions



Do not live on yesterday's successes. Past performance is not an indication of future performance



Proactively work with teams to assess and mitigate risks



Do not be afraid to retool. Today's Business Intelligence tools are more powerful and may be able to simplify or eliminate current steps required to produce your deliverables

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Business Impact and Results

- Organizational Metrics
 - Delivery Performance charts embedded into customer proposal
 - Worldwide performance goals based on Benchmarking Reports
- Business Value
 - Business Analytics to drive business decisions in annual budgeting/funding process
- Fact-based, not Emotion-based discussions
 - Data analysis used to refute claims/perceptions
 - Statistical Analysis for fact finding
- Drive new business
 - Using empirical evidence about IBM performance to win new business
- Sustain/enhance existing business relationships
 - Using business analytics to find hidden value information to strengthen business relationships between customers and IBM account teams

Business Impact and Results

- Reducing financial risks on new/renewed contracts
 - A trusted advisor to the IBM Legal team
 - Identified hundreds of millions of dollars of financial risk to IBM by identifying biased or unenforceable benchmarking clause language
- Business Intelligence Analytics
 - Data analysis for IBM Delivery teams to identify delivery excellence and performance issues in support of
 - Contract Benchmarking
 - Customer concerns
 - New business opportunities
 - Competitive pricing analysis has enabled new business opportunities and have allowed IBM teams to avoid costly and unsubstantiated adjustments

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Acquire a Management Advocate



Assemble a stable team with the right skills



Fund the development and integration of the Benchmarking processes and tools



Educate the team properly



Innovate, improve, and refresh the program services and capabilities



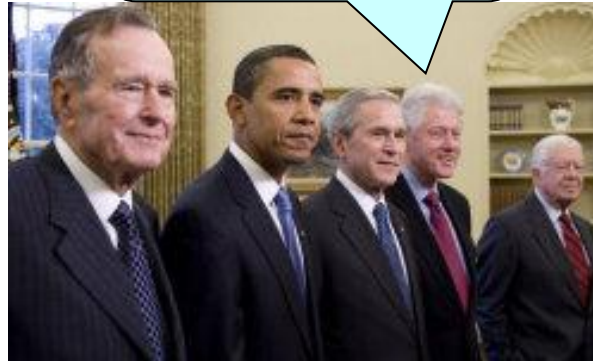
Demonstrate and communicate the value of the Benchmarking program

Corporate Lingo Explained

Are we clear what Delivery Performance means?



I think it means how fast UPS delivers your eBay packages.



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At least someone was paying attention.

